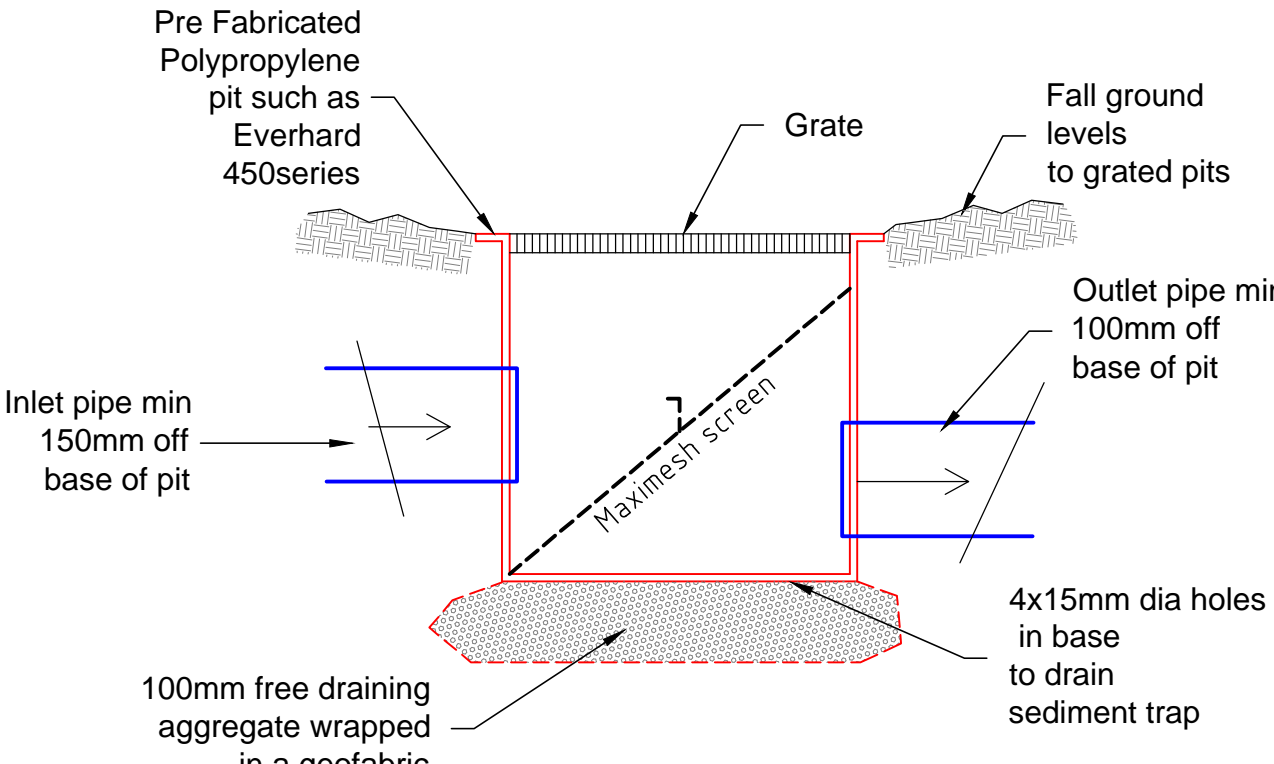


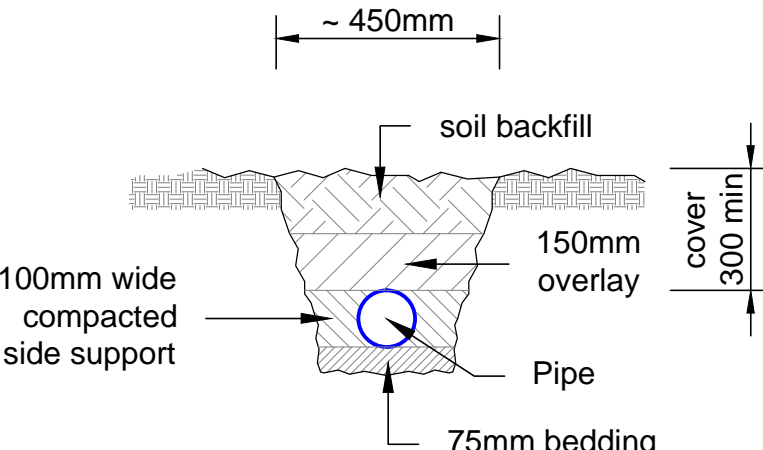
STORMWATER NOTES

- 1. All roof collection components (ie gutters / DPs etc) are to be located / sized by the Developments contracting Plumber for a **5% AEP** event capacity (30m2 roof area per 90mm dp via Quad low front gutter).
- 2. Trunk lines shown on plan to be 150mm dia uPVC.
- 3. All pipes to be uPVC to AS 1254:2002.
- 4. All pipes to be laid at the grade required to match pit invert levels.
- 5. All pipes to be installed and laid in accordance with AS 3500.3:2003.
- 6. All roof guttering/ down pipes / valley gutters / box gutters etc are to be sized and installed in accordance with AS 3500.3:2003.
- 7. All pits are to be proprietary uv resistant polypropylene or similar unless noted (approved by the Engineer) and are to include a min 50mm sediment trap in the base and a maximesh screen laid at 45° across the pit to protect the outlet pipe.
- 8. All pits greater than 600mm in depth are to be proprietary precast concrete (approved by the Engineer).
- 9. All pits greater than 1000mm in depth are to have adequate access requirements in accordance with OH&S/Workcover requirements (ie; minimum dimensions 900x900mm with step irons).
- 10. All works are to be inspected and certified by the Principle Certifying Authority prior to backfilling.
- 11. All works requiring certification by the Engineer will require a works as executed survey prepared by a registered Surveyor detailing all levels etc as on the Engineering plans.
- 12. The system is to be flushed and cleaned of all sediment and debris annually.
- 13. The system will require regular cleaning and maintenance to ensure its ability to function is maintained.
- 14. To ensure the system's ability to function is maintained it is to be inspected and certified as operating effectively by a licensed plumber every 5 years, and an engineer every 20yrs.
- 15. All existing predevelopment catchment area run-off conditions exiting the site are to be maintained with no run-off flows being diverted from the predevelopment condition.
- 16. Flows from upstream properties entering the site are to be monitored during construction and diverted about the OSD system / residence etc as required.



TYPICAL PIT DETAIL

NTS
Pre Fabricated Polypropylene pit such as Everhard 450 series



TYPICAL PIPE & TRENCH DETAIL

~ 1 : 20
Bedding / overlay to be -
a) sand, free from rock, hard or sharp objects
b) max 14mm crushed rock or gravel
c) the excavated material free of rock, hard or sharp objects and broken up with no soil lumps > 75mm dia

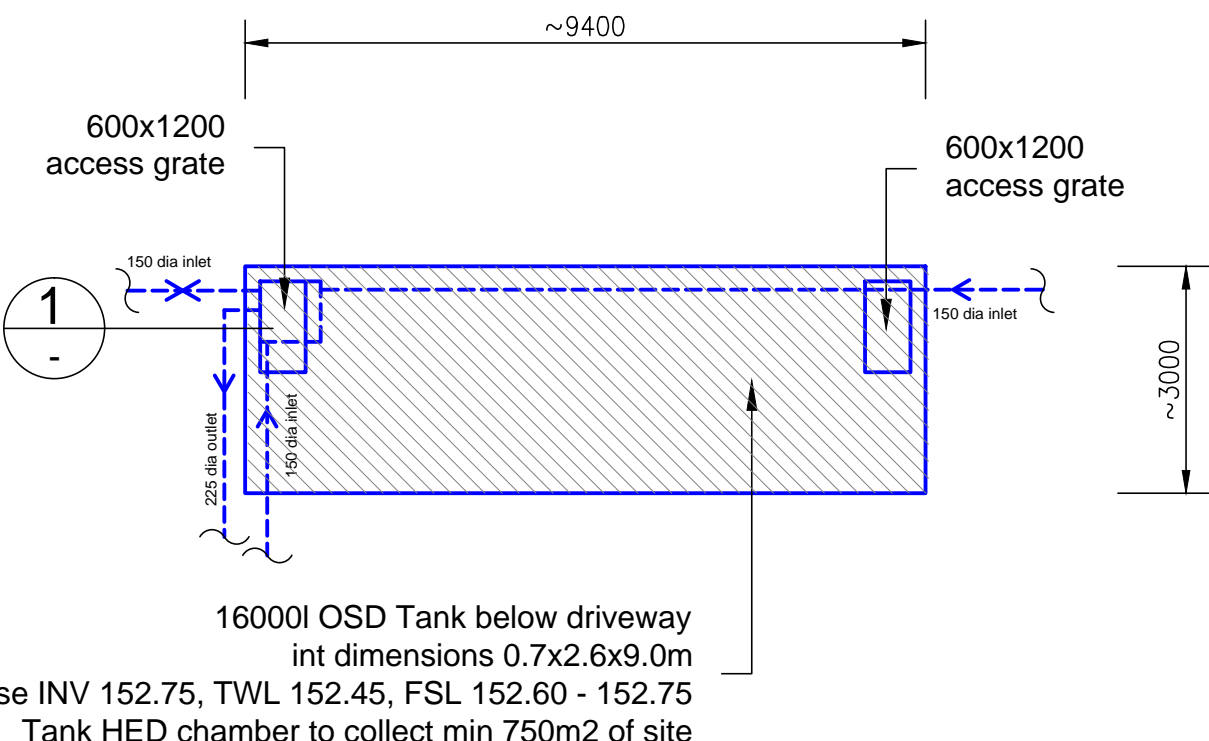
SITE STORMWATER MANAGEMENT PLAN

1:100

All run-off from the developments roof, driveway (exc front 6m) and courtyard areas is to be directed to the OSD Tank HED chamber (inc overflow from any storage tanks). The OSD is designed in accordance with Warringah Councils "On Site Stormwater Detention Technical Specification Full Computation Method" to reduce peak storm run-off flowrates to that of a "greenfields" site. The OSD system is to be achieved by constructing a 16000L storage tank below the developments driveway. Variations to layout to be reviewed and approved by Barrenjoey Consulting Engineers before construction.

STORMWATER FLOW SUMMARY
(DRAINS ANALYSIS)

Site area	- 917.2m2
Existing impervious area	- ~350 m2 (0m2 modeled)
Proposed impervious area	- ~700 m2 (850m2 modeled)
Detention Volume modeled	- 16000L
PSD modeled	- 24 l/s
Existing Site Discharge (100% Pervious ie Greenfields)	
5yr ARI Storm	- 29 l/s
100yr ARI Storm	- 55 l/s
Post Development Site Discharge	
5yr ARI Storm	- 29 l/s (7 uncon, 22 via OSD)
100yr ARI Storm	- 36 l/s (11 uncon, 24/1 via OSD)

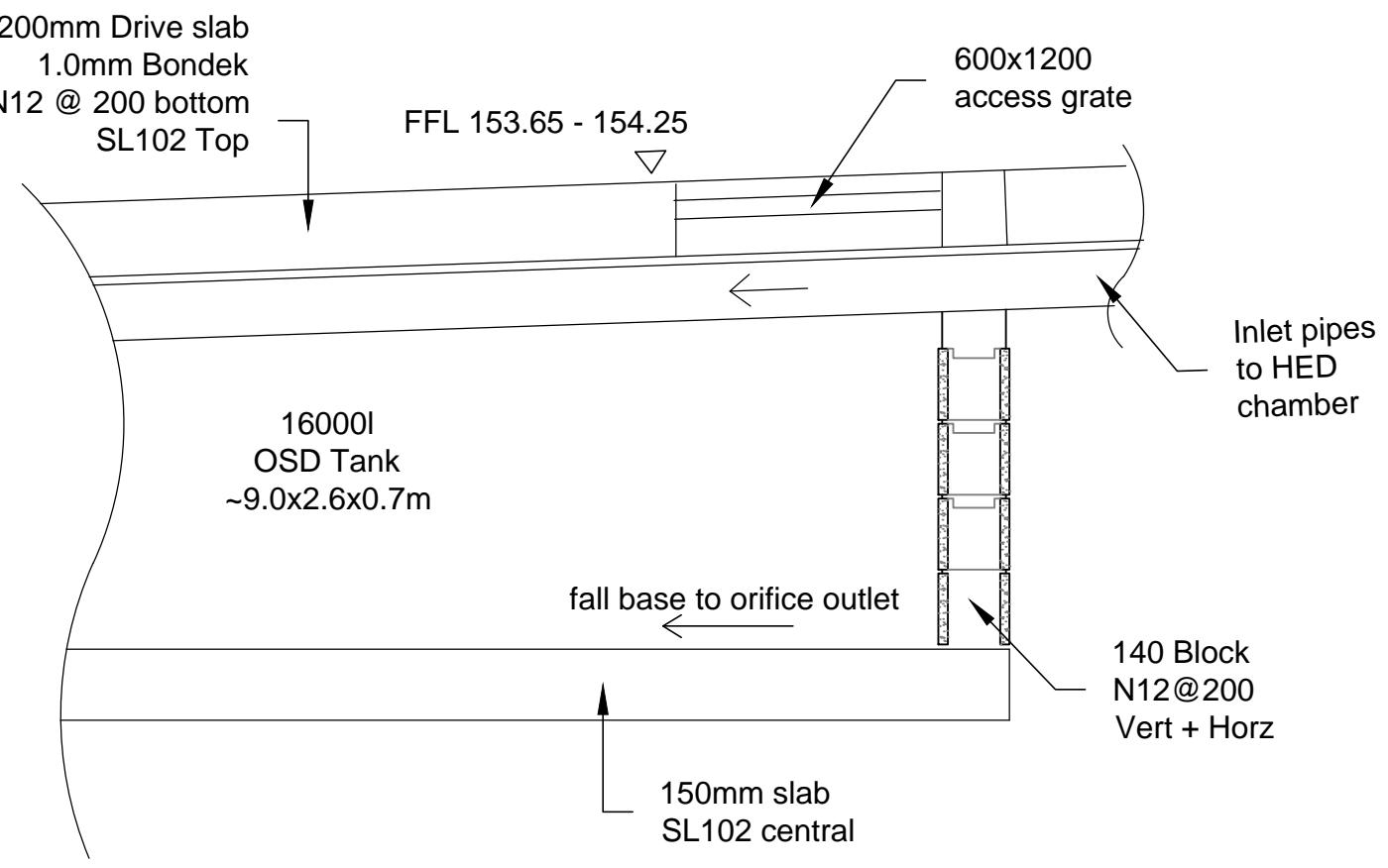
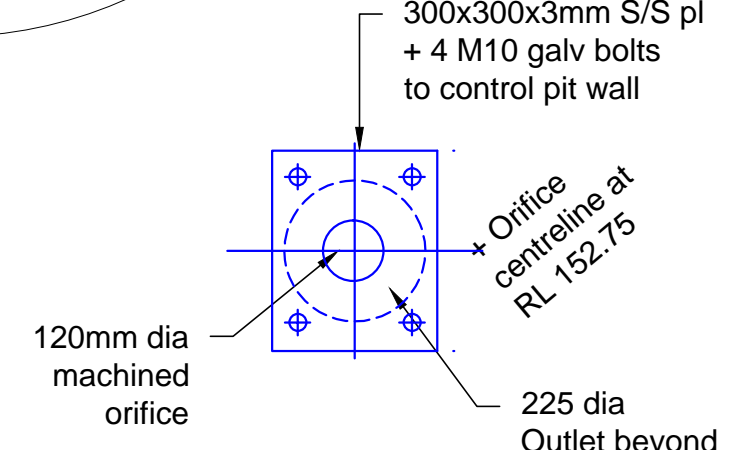


OSD TANK
DETAIL

1:100

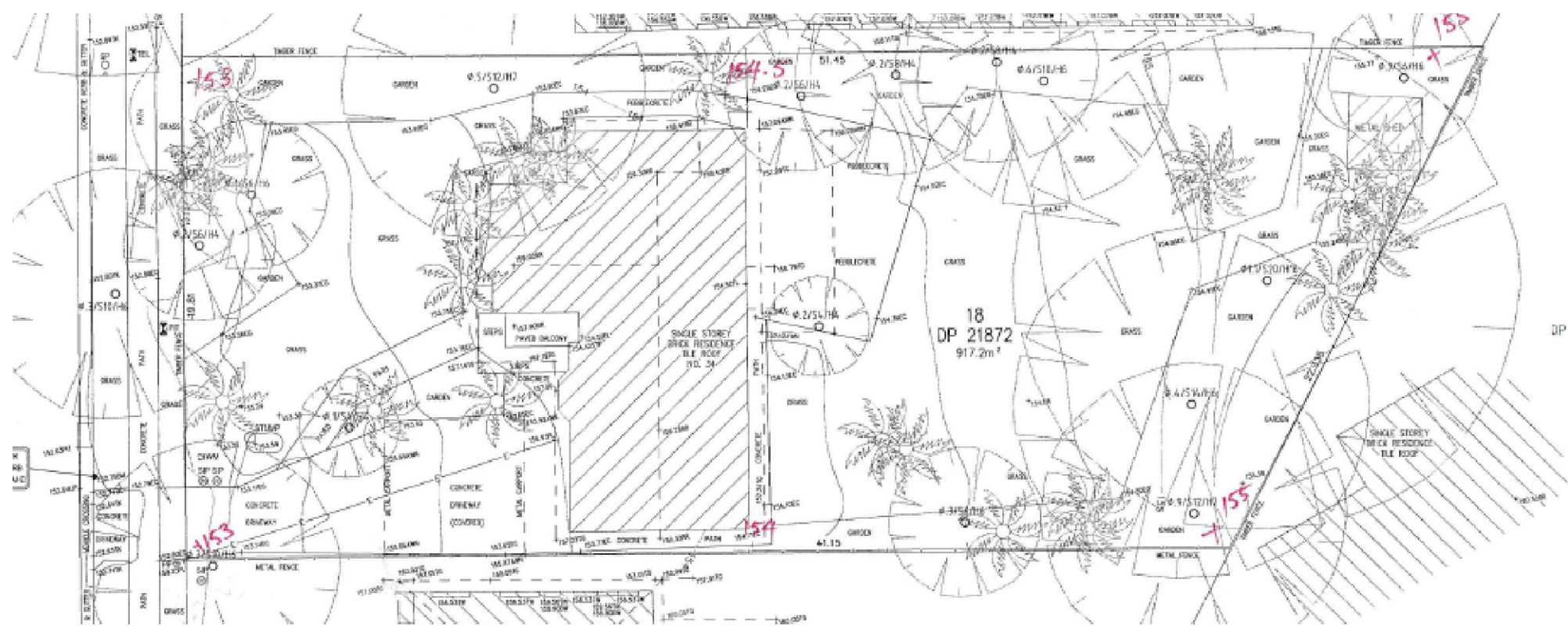
OSD CONTROL
ORIFICE PLATE DETAIL

1:10



SECTION 1 THROUGH OSD TANK

~ 1:20



EXISTING SITE SURVEY

NTS

for detail refer survey by TSS Total Surveying Solutions ref 172343

ISSUE:		
Prelim	20. 08. 2019	Issued for comment
DA	20. 08. 2019	Issued for DA submission
Rev A	26. 11. 2019	OSD storage revised to below drive tank

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PROJECT:
**PROPOSED
RESIDENTIAL DEVELOPMENT
34 ADAMS STREET
FRENCHS FOREST
for ~ HUMPHERSON**

DRAWING :
**STORMWATER MANAGEMENT
PLAN**

Job No : 190802	Drawing No SW1 DA Rev A
Document Certification Barrenjoey Consulting Engineers pty ltd per Lucas Molloy MIEA CPEng NER Director	